

NOISE ASSESSMENT IN EPIDEMIOLOGICAL STUDIES

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Background and Aims: In studies on noise and health different exposure indicators are used varying from the presence of a noise source, measurements at specific locations and modelling of noise at different facades of home addresses. The use of different exposure assessment methods was explored.

Methods: The impact of road noise on use of antihypertensive drugs was studied in The Netherlands with registered data for about 1 million patients from pharmacies. The exposure was derived from noise maps and aggregated at postal code area, the level for which medication data was available. In a study among 1048 German children information on the road traffic exposure at home was collected in an interview (Babisch et al 2009). This was validated with short-term noise measurements. Blood pressure was measured at clinical study centres.

Results: In the Netherlands an association was observed between road traffic noise and antihypertensive use although there was substantial exposure misclassification. The RR per 5 dB was 1.17 [95% CI: 1.02-1.33] for a threshold of 60 dB and 1.03 [1.00-1.07] for a threshold of 50 dB. In Germany the lowest blood pressure was found among children whose room was facing a 'low traffic' street. The difference with children with a room facing a street with a 'high or extremely high traffic' volume was on average 1.8 mmHg for systolic blood pressure; 0.48 mmHg [0.15-0.81] per 5 dB.

Conclusions: The results indicate that different exposure assessment methods are capable of identifying risks of road traffic noise exposure in health studies. The pro and cons of different approaches will be discussed.

References:

Babisch W, Neuhauser H, Thamm M, Seiwert M. Blood pressure of 8-14 year old children in relation to traffic noise at home -- Results of the German Environmental Survey for Children (GerES IV). *Science of The Total Environment*. 2009;407:5839-43.